

**REMARKS**

Favorable reconsideration of this application is respectfully requested in view of the amendments above and the following remarks. By virtue of the amendments above, Claim 4 has been canceled without prejudice or disclaimer of the subject matter contained therein. In addition, Claims 1, 8, 10, and 15 have been amended. Therefore, Claims 1, 3, and 5-23, are currently pending in the present application, of which, Claims 1, 10, and 15 are independent.

No new matter has been introduced by way of the claim amendments and entry thereof is therefore respectfully requested.

*Drawings*

The indication that the Drawings filed on September 11, 2003 have been accepted is noted with appreciation.

*Claim Objection*

The Official Action sets forth an objection to Claim 8 as allegedly containing informalities. More particularly, the Official Action states that the recitation "such" before "interface temperatures" should be replaced with "said" to clearly describe the invention. Claim 8 has been amended in minor respects to be in better compliance with USPTO rules. In addition, the amendment to Claim 8 has not been made for purposes of patentability.

*Claim Rejection Under 35 U.S.C. §102*

The test for determining if a reference anticipates a claim, for purposes of a rejection under 35 U.S.C. § 102, is whether the reference discloses all the elements of the claimed combination, or the mechanical equivalents thereof functioning in substantially the same way

**PATENT**

Atty Docket No.: 200209582-2  
App. Ser. No.: 10/660,863

to produce substantially the same results. As noted by the Court of Appeals for the Federal Circuit in *Lindemann Maschinenfabrick GmbH v. American Hoist and Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984), in evaluating the sufficiency of an anticipation rejection under 35 U.S.C. § 102, the Court stated:

Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim.

Therefore, if the cited reference does not disclose each and every element of the claimed invention, then the cited reference fails to anticipate the claimed invention and, thus, the claimed invention is distinguishable over the cited reference.

**U.S. Patent Publication No. 2003/0072349 to Osone et al.**

Claims 1 and 3 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by the disclosure contained in U.S. Patent Publication No. 2003/0072349 to Osone et al. This rejection is respectfully traversed because the present invention as set forth in independent Claim 1 and the claims that depend therefrom are patentably distinguishable over the disclosure contained in Osone et al.

Claim 1 of the present invention has been amended to include that the step of characterizing the thermal material properties of the TIM sample from calculations based on data obtained in the step of measuring follows a time when the temperature measurements in the step of measuring should have reached a steady-state according to a previous trial run of the TIM sample. Claim 1, therefore, has been amended to include the features of cancelled Claim 4. Because the Official Action has not rejected Claim 4 based upon the disclosure contained in Osone et al., Claim 1 is now considered to be allowable over the Osone et al. disclosure.

Accordingly, Osone et al. fails to disclose each and every element claimed in Claim 1. The Examiner is thus respectfully requested to withdraw the rejection of Claim 1 as allegedly being anticipated by the disclosure contained in Osone et al. Osone et al. also fails to anticipate Claim 3 based at least on the fact that Claim 3 depends upon allowable Claim 1. In addition, Osone et al. fails to disclose each and every element claimed in Claim 3 of the present invention.

**U.S. Patent No. 3,817,109 to Audet et al.**

Claims 1, 3, 8 and 9 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by the disclosure contained in U.S. Patent No. 3,817,109 to Audet et al. This rejection is respectfully traversed because the present invention as set forth in independent Claim 1 and the claims that depend therefrom are patentably distinguishable over the disclosure contained in Audet et al.

Claim 1 of the present invention has been amended to include that the thermal interface material is thermally conductive. Claim 1 has also been amended to include that the step of characterizing the thermal material properties of the TIM sample from calculations based on data obtained in the step of measuring follows a time when the temperature measurements in the step of measuring should have reached a steady-state according to a previous trial run of the TIM sample.

Audet et al. discloses a hyperbaric simulator in which properties of a material are evaluated under simulated deep sea pressures. In this regard, Audet et al. discloses a pressure chamber 11 within which are provided various testing equipment. For instance, with respect to Figure 3 of Audet et al., the testing equipment is a thermal conductance tester. As shown therein, the thermal conductance tester includes water chillers 78 and 79 and heaters 70 and

71. Two samples 84 and 85 are positioned to abut the heaters and a pair of water baths 86 and 87 are formed adjacent respective opposite sides of the samples 84 and 85. The temperatures of the water contained in the water baths 86 and 87 are controlled by the thermoelectric chillers 78 and 79.

The Official Action asserts that the samples 84 and 85 of Audet et al. are similar to the thermal interface material sample claimed in Claim 1 of the present invention. This is not an accurate assertion because none of the materials disclosed in Audet et al. are similar to the thermal interface materials disclosed in the present invention. Instead, Audet et al. discloses that the materials tested are for use in deep sea swimmer suits. (Col. 1, lines 5-7). In this regard, the materials include those having insulative properties, such as neoprene. (Col., lines 8-10). Thus, the materials are not thermal interface materials.

The materials tested have been further distinguished by way of the amendment to Claim 1. More particularly, Audet et al. clearly does not disclose that the materials tested are thermally conductive thermal interface material. In addition, because the materials tested in Audet et al. are designed to protect deep sea swimmers, making the materials thermally conductive would destroy the intent of Audet et al.

The Official Action also asserts that Audet et al. discloses that a constant pressure is maintained at each of the plurality of different pressures in spite of any changes in size of the thermal interface materials. The Official Action asserts that these features are disclosed in column 2, lines 45-48 and column 7, lines 34-50 of Audet et al. It is submitted, however, that those paragraphs of Audet et al. do not disclose these features.

Instead, column 2, lines 45-48 of Audet et al. refer to a thickness tester component deployed in a "pressure chamber 11 which is maintained at a selected gas pressure through a pressure supply source 12 and a pressure port 13." It is not at all understood as to how the

Official Action concludes that this passage in Audet et al. is equivalent to the features claimed in amended Claim 1. More particularly, maintaining a pressure chamber at a selected gas pressure is **not** the same as adjusting the pressure applied to each of a plurality of different pressures to maintain a constant pressure on thermal interface material sample even though the thermal interface material expands and contracts with changes in its temperature. Therefore, the passage contained in column 2, lines 45-48 of Audet et al. do not anticipate Claim 1 of the present invention.

In addition, column 7, lines 34-50 of Audet et al. describes the pressure range of the thermal conductance tester in terms of seawater and concludes that the “thermal conductance tester provides a means of determining the influence of pressure on the thermal protection supplied by a particular material sample and, in conjunction with the thickness tester, gives thermal conductivity data.” Again, there is nothing in this passage of Audet et al. to indicate that Audet et al. intended to adjust the pressure applied to each of a plurality of different pressures to maintain a constant pressure on thermal interface material sample even though the thermal interface material expands and contracts with changes in its temperature as claimed in Claim 1 of the present invention.

Audet et al. further fails to anticipate amended Claim 1 because Claim 1 now includes the features of cancelled Claim 4. Because the Official Action has not rejected Claim 4 based upon the disclosure contained in Audet et al., Claim 1 is now considered to be allowable over the Audet et al. disclosure.

Accordingly, it is respectfully submitted that Audet et al. fails to disclose each and every element claimed in amended Claim 1. The Examiner is thus respectfully requested to withdraw the rejection of Claim 1 as allegedly being anticipated by the disclosure contained

**PATENT**

Atty Docket No.: 200209582-2  
App. Ser. No.: 10/660,863

in the Audet et al. document. In addition, the rejection of the claims that depend from Claim 1 should also be withdrawn for at least the reasons set forth with respect to Claim 1.

*Claim Rejection Under 35 U.S.C. §103*

The test for determining if a claim is rendered obvious by one or more references for purposes of a rejection under 35 U.S.C. § 103 is set forth in MPEP § 706.02(j):

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Therefore, if the above-identified criteria are not met, then the cited reference(s) fails to render obvious the claimed invention and, thus, the claimed invention is distinguishable over the cited reference(s).

**Audet et al. in view of El-Husayni**

Claims 4-7 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Audet et al. in view of U.S. Patent No. 5,940,784 to El-Husayni. This rejection is respectfully traversed because Audet et al. and El-Husayni, considered singly or in combination, fail to disclose the invention as set forth in independent Claim 1 of the present invention, upon which Claims 4-7 depend.

As described hereinabove, Audet et al. fails to disclose each and every element claimed in Claim 1 of the present invention. In addition, the Official Action does not allege

that El-Husayni makes up for any of the deficiencies in Audet et al. described hereinabove. Accordingly, it is respectfully submitted that the proposed combination of Audet et al. and El-Husayni would not yield the present invention as set forth in Claim 1 and therefore does not disclose the present invention as set forth in Claims 4-7.

In addition, El-Husayni itself does not disclose the elements of Claims 4-7. For instance, El-Husayni discloses that a calibration procedure for calibrating a testing instrument includes that "a reference sample with known thermal conductivity is measured to calibrate the instrument." This differs from the present invention as set forth in Claims 4-7 because the calibration described in these claims refer to the material sample being tested.

Moreover, the Official Action has failed to provide a proper motivation for the proposed combination of Audet et al. and El-Husayni. Accordingly, it is respectfully submitted that the disclosures of Audet et al. and El-Husayni, considered either singly or in combination fail to disclose all of the features claimed in Claims 4-7 of the present invention. The Examiner is thus respectfully requested to withdraw the rejection of Claims 4-7.

**Osone et al. in view of Stanley et al.**

Claims 10-23 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Osone et al. in view of U.S. Patent No. 3,733,887 to Stanley et al. This rejection is respectfully traversed because Osone et al. and Stanley et al., considered singly or in combination, fail to disclose the invention as set forth in independent Claims 10 and 15 of the present invention.

Claim 10 has been amended to include that the computer is configured to build the thermal-resistance-curve model following a time when the temperature measurements in the step of collecting temperature information should have reached a steady-state according to a

**PATENT**

Atty Docket No.: 200209582-2  
App. Ser. No.: 10/660,863

previous trial run of the TIM sample. Claim 10, therefore, has been amended to include the features of cancelled Claim 4. Because the Official Action has not rejected Claim 4 based upon the disclosure contained in Osonne et al., Claim 10 is now considered to be allowable over the proposed combination of Osonne et al. and Stanley et al.

Claim 15 has been amended to include that the building of the thermal-resistance-curve model of the TIM sample follows a time when the temperature measurements in the step of collecting temperature information should have reached a steady-state according to a previous trial run of the TIM sample. Claim 15, therefore, has been amended to include the features of cancelled Claim 4. Again, because the Official Action has not rejected Claim 4 based upon the disclosure contained in Osonne et al., Claim 15 is now considered to be allowable over the proposed combination of Osonne et al. and Stanley et al.

In addition, the Official Action does not rely upon the disclosure contained in Stanley et al. to make up for these deficiencies in Osonne et al. Instead, the Official Action relies upon Stanley et al. for its disclosure of copper blocks in a thermal property measurement device. Therefore, Osonne et al. in view of Stanley et al. fails to disclose each and every element claimed in Claims 10 and 15. The Examiner is thus respectfully requested to withdraw the rejection of Claims 10 and 15 as allegedly being unpatentable over the disclosures contained in Osonne et al. and Stanley et al.

In addition, the claims that depend from Claims 10 and 15 are also allowable over the disclosures contained in Osonne et al. and Stanley et al. at least by virtue of their respective dependencies upon allowable independent Claims 10 and 15.



**PATENT**

Atty Docket No.: 200209582-2  
App. Ser. No.: 10/660,863

Conclusion

In light of the foregoing, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

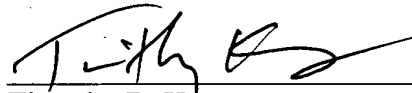
Should the Examiner believe that a telephone conference with the undersigned would assist in resolving any issues pertaining to the allowability of the above-identified application, please contact the undersigned at the telephone number listed below. Please grant any required extensions of time and charge any fees due in connection with this request to deposit account no. 08-2025.

Respectfully submitted,

Chih C. Shih et al.

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By



Timothy B. Kang  
Registration No. 46,423

MANNAVA & KANG, P.C.  
8221 Old Courthouse Road  
Suite 104  
Vienna, VA 22182  
(703) 652-3817  
(703) 880-5270 (fax)